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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,414

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Raju Adhikari

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Ballard Spahr Andrews & Ingersoll, LLP
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915

EXAMINER

DICKINSON, PAUL W

ART UNIT

PAPER NUMBER

1618

MAIL DATE

DELIVERY MODE

02/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,414	Applicant(s) ADHIKARI ET AL.	
	Examiner PAUL DICKINSON	Art Unit 1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 1-10, 13, 15-18 and 23-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11, 12, 14 and 19-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/12/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's arguments, filed 11/12/2008, have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objects are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

In the search for the elected species, prior art directed to non-elected embodiments was discovered. This discovery is not an indication that the full scope of the claims have been examined.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-12, 13, and 10-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites "linear star dendrimer". This is not a term of art and it is unclear what compounds are encompassed by this term. A "linear" polymer is one that is unbranched, however a star polymer and a dendrimer are branched. Claim 11 further recites "hyperbranched soft segment forming functional oligomers with degradable arms". The recitation of the present tense of "to form" makes this phrase confusing. It is unclear if the hyperbranched soft segment already possesses functional oligomers with degradable arms, or if functional oligomers are formed during the process of claim 11.

Claim 22 recites "sodium chloride type salts". It is unclear what constitutes a sodium chloride type salt (i.e. the salt must contain a sodium cation, a chloride anion, or both, the salt must contain cations and anions from the same columns of the periodic table as sodium and chloride, the salt must have the same crystal structure as sodium chloride, etc).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-12 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4412033 ('033). '033 discloses cured isocyanate-capped prepolymer compositions and their role as adhesives (see col 1, lines 8-27). A polyol, such as

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poly(caprolactone) triol, is end-capped with an isocyanate, such as a diisocyanate, to form an isocyanate-terminated polyurethane prepolymer (see col 6, line 46 to col 9, line 3; claim 7). A curing agent, such as pentaerythritol, is added which links one polyurethane prepolymer to another (see col 9, line 5 to col 10, line 4). The reaction is done in the presence of water (see col 10, lines 5-16). Colloidal silica particles (a biological component) are added as inorganic thickeners to add body to the composition (see col 6, lines 17-39).

One way of viewing the final product is that a poly(caprolactone) triol is connected to pentaerythritol through a diisocyanate linkage. That the diisocyanate is first added to the poly(caprolactone) triol and subsequently treated with pentaerythritol is different than the instantly claimed method, wherein the diisocyanate (an isocyanate) is first added to pentaerythritol (a low molecular weight multifunctional core molecule having a molecular weight of 400 or less) and subsequently treated with the poly(caprolactone) triol (a linear star dendrimer). “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. In the instant case, the same product is made whether the diisocyanate is first added to the poly(caprolactone) triol and subsequently treated with pentaerythritol (as done by ‘033) or if the diisocyanate is first

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added to pentaerythritol and subsequently treated with the poly(caprolactone) triol (as presently claimed).

'033 does not appreciate that the composition has a compressive strength in the range of 0.05-80 MPa nor that the product has pores in a size range of 150-300 microns. Based on the substantially identical process using identical components, the Examiner has a reasonable basis to believe that the properties claimed in the present invention are inherent in the composition of '033. Because the PTO has no means to conduct analytical experiments, the burden of proof is shifted to the Applicant to prove that the properties are not inherent. “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).” MPEP § 2112.

Claims 11 and 19-22 are rejected under 35 U.S.C. 102(b) as being unpatentable over US 4293679 ('679). '679 discloses a polyurethane prepolymer (a flowable prepolymer) prepared by the reaction product of a polyol, such as, pentaerythritol (a low molecular weight multifunctional core molecule having a molecular weight of 400 or less) and a diisocyanate (an isocyanate) (see abstract; col 5, lines 7-31). A third polyol, such as sucrose (a hyperbranched soft segment forming functional oligomers with

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degradable arms) may be added to the reaction (see col 5, lines 32-44). The advantage of the invention is that the flowable prepolymer is water-soluble and may be added to water soluble reactants and additives, where similar chemistry could only be performed in organic solvents (see col 5, line 67 to col 7, line 6). A surfactant (a biological component) may be added to the composition (see col 7, line 45).

'679 does not appreciate that the composition has a compressive strength in the range of 0.05-80 MPa nor that the product has pores in a size range of 150-300 microns. Based on the substantially identical process using identical components, the Examiner has a reasonable basis to believe that the properties claimed in the present invention are inherent in the composition of '679. See MPEP § 2112.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-12, 13, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4412033 ('033) in view of US 4908406 ('406). The relevant portions of '033 are given above. '033 fails to disclose incorporation of methyl 2,6-diisocyanato hexanoate as the isocyanate. '033 teaches that the isocyanate should be aliphatic and have a functionality of greater than 1 but less than 4 (see col 7, line 47 to col 8, line 1). The isocyanate does not have to have symmetrical features or –NCO groups with equal reactivity to be useful in the invention (see col 8, lines 12-14).

'406 teaches that methyl 2,6-diisocyanato hexanoate is known in the art as a compound which links a polyol and a polyhydroxy compound providing a cured polyurethane adhesive (see col 1, lines 4-7; col 2, lines 50-59).

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to incorporate methyl 2,6-diisocyanato hexanoate into the formulation of '033. '033 and '406 are both directed to preparing cured polyurethane

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adhesives. The rationale to incorporate methyl 2,6-diisocyanato hexanoate into the formulation of '033 is (1) the compound is known to serve as a linker between polyols and polyhydroxy compounds to provide cured polyurethane adhesives and (2) it meets the structural and functional requirements taught by '033, namely that it is aliphatic and has a functionality greater than 1 but less than 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL DICKINSON whose telephone number is (571)270-3499. The examiner can normally be reached on Mon-Thurs 9:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric E Silverman/
Examiner, Art Unit 1618

Paul Dickinson
Examiner
AU 1618

January 31, 2009